

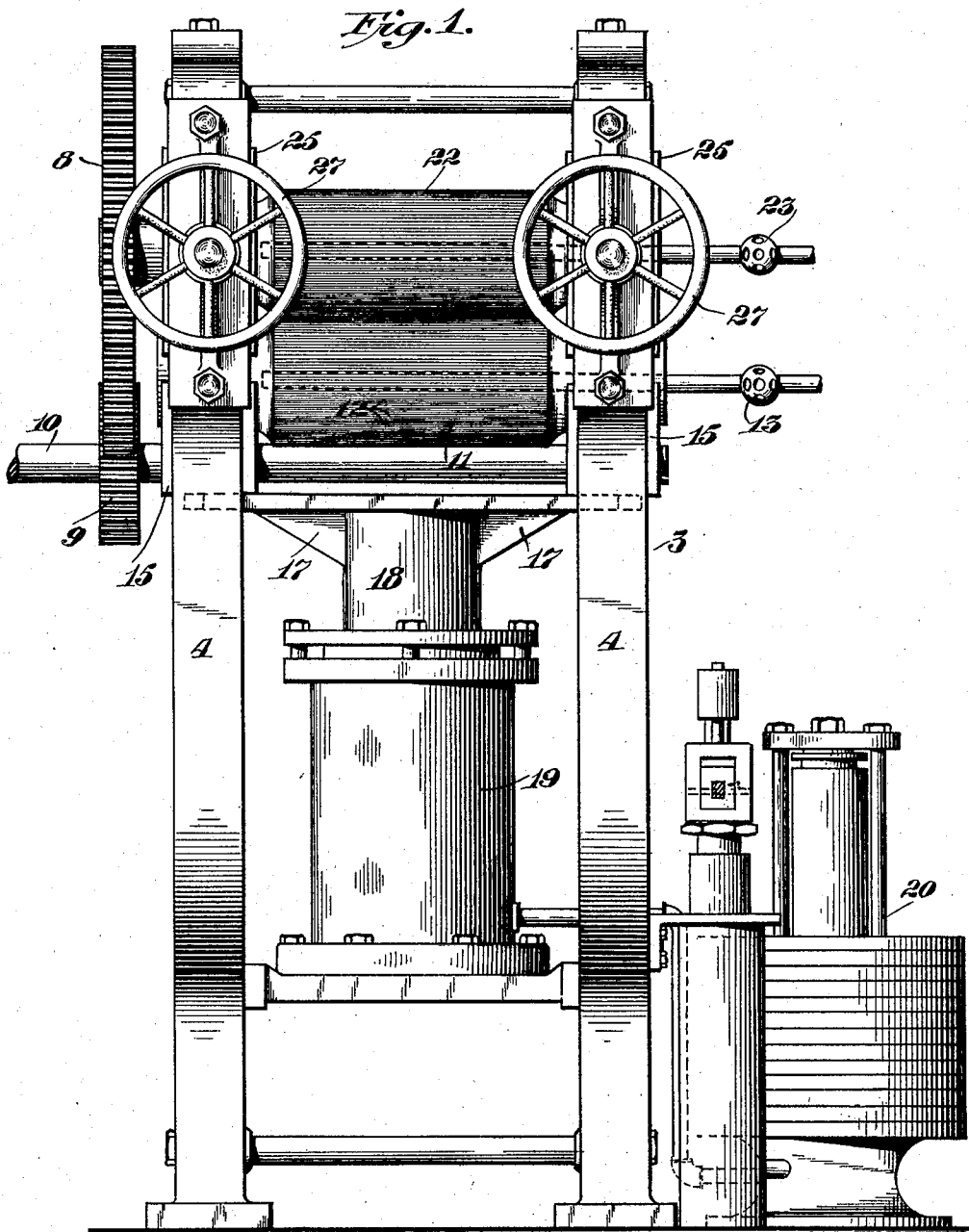
No. 823,509.

PATENTED JUNE 19, 1906.

J. J. CAVAGNARO.
MACHINE FOR MAKING WATERED SILK.

APPLICATION FILED NOV. 28, 1905.

2 SHEETS—SHEET 1.



Attest:
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Comptroller

Inventor:
John J. Cavagnaro
by *Charles F. Rogers* Atty

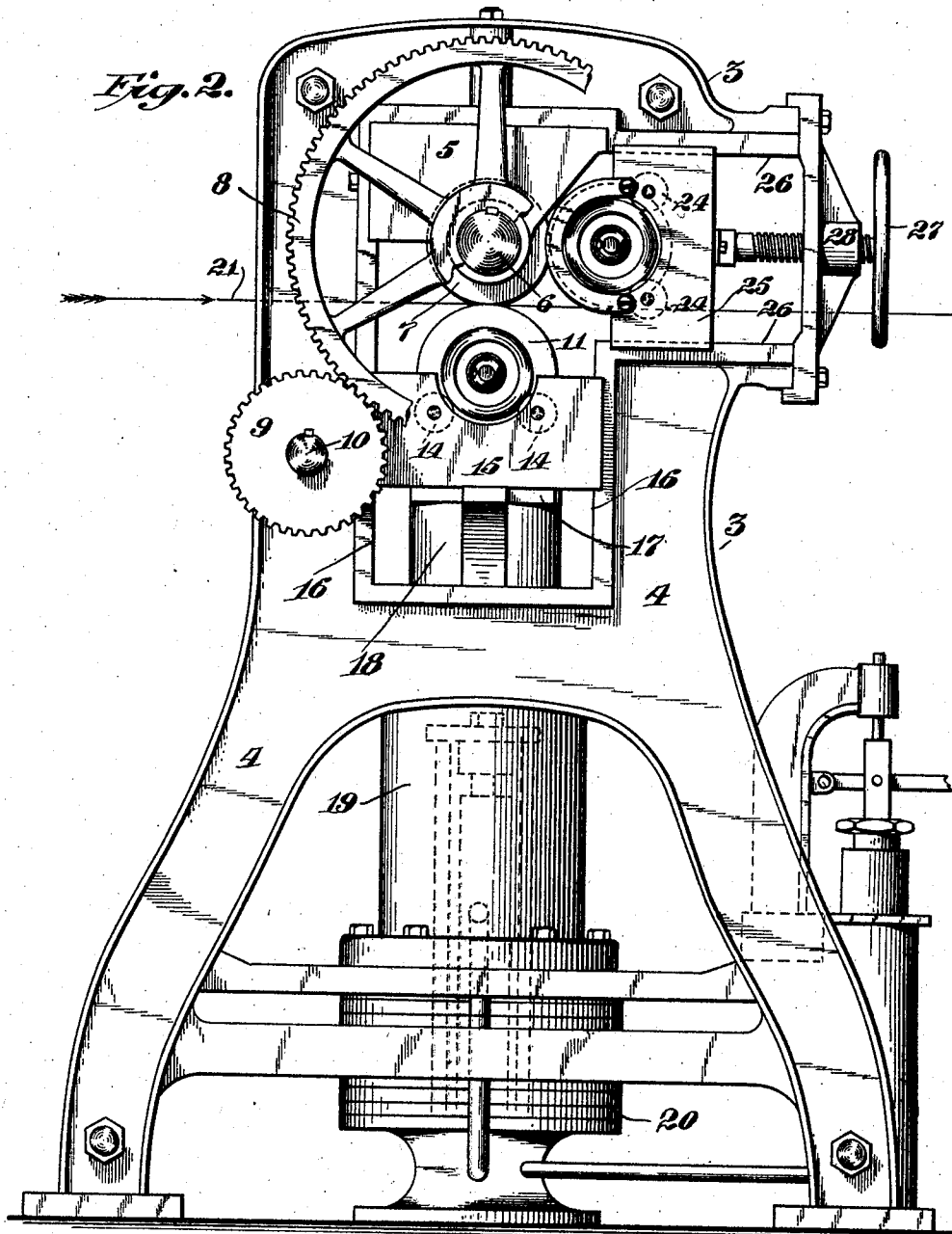
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Attest:

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by

Inventor:
John J. Cavagnaro
Attorney:
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UNITED STATES PATENT OFFICE.

JOHN J. CAVAGNARO, OF NEW YORK, N. Y.

MACHINE FOR MAKING WATERED SILK.

No. 823,509.

Specification of Letters Patent.

Patented June 19, 1906.

Application filed November 28, 1905. Serial No. 289,412.

To all whom it may concern:

Be it known that I, JOHN J. CAVAGNARO, a citizen of the United States, residing in the city, county, and State of New York, and whose address is 215 Center street, in said city, county, and State, have invented a new and useful Improvement in Machines for Making Watered Silk; and I do hereby declare that the following is a full, clear, and exact description of the same.

My invention is an improvement in machines for making watered silk, in which the woven silk is passed between pressure-rolls, one of which is generally of metal engraved with a number of fine longitudinal ribs corresponding to the transverse ribs of the silk and the other of which is usually of compressed paper on which is formed by the metal roll a like number of longitudinal indentations, which coöperate with those on the metal roll to upset the ribs of the silk and produce the irregular pattern called "watering." Against the paper roll also bears another pressure-roll, usually of metal, having the same number of ribs, which mesh into the ribs of the paper roll, and thus keeps them fresh and in form.

My improvement consists mainly in a novel combination and arrangement of the metal and paper rolls and in the means for applying pressure thereto and also in certain other features of construction, which will be hereinafter fully described, and pointed out particularly in the claims.

Reference is to be had to the accompanying drawings, forming part of this specification, in which the same parts are designated by like numbers in both figures.

Figure 1 is a front elevation of a machine for making watered silk embodying my invention. Fig. 2 is a side elevation of the same.

3 is the frame of the machine; 4, the standards of the frame. 5 represents bearings fixed at the top of the standards 4. In the bearings 5 is mounted to revolve a horizontal shaft 6, on which is fixed a roll 7, which is usually made of a number of paper disks united under hydraulic pressure and turned down to form a paper roll, which will take and keep the impressions from the engraved metal rolls hereinafter described. On the shaft 6 of the paper impression-roll 7 is keyed a large spur-wheel 8, which is geared to a small spur-wheel 9, which is fixed on a shaft 10, mounted in suitable bearings in the frame 3, which

shaft 10 is driven by a pulley and belt, so as to rotate the paper roll 7 at the required speed.

Beneath and parallel to the impression-roll 7 is arranged a metal forming-roll 11, which is engraved with a number of fine longitudinal ribs 12, corresponding exactly to the transverse ribs in the woven silk to be given the watered effect. The engraved metal forming-roll 11 is hollow and is heated by the flame of a Bunsen burner 13, entering it axially at one end. The metal forming-roll 11 is mounted to revolve freely on roller-bearings 14, carried by main bearings 15, which are mounted to slide vertically on vertical guides 16 on the frame 3. The bearings 15 are carried by a transverse yoke 17, formed on the plunger 18 of an ordinary hydraulic press 19, provided with an accumulator 20, by means of which hydraulic press the engraved forming-roll 11 can be pressed upward against the paper roll 7 and held in such position under any desired pressure, but yieldingly, to accommodate variations in the thickness of the silk 21 to be watered, which passes between the metal forming-roll 11 and the paper roll 7, as indicated in the drawings. The forming-roll 11 bearing with such pressure against and rotating with the engraved rotating paper roll 7 produces thereon ribs corresponding exactly to the ribs on the forming-roll 11, which ribs, both corresponding to the ribs on the woven silk, coöperate to upset, as it were, the ribs on the silk in an irregular pattern, producing on both sides of the silk the desired lustrous watered effect.

At the side of the paper roll 7 I arrange another metal re-forming-roll 22, engraved like the forming-roll 11 and heated likewise interiorly by an axially-entering Bunsen burner 23. The re-forming-roll 22 is mounted to rotate freely on roller-bearings 24, carried by main bearings 25, which are mounted to slide horizontally to and from the paper roll 7 in horizontal guides 26 on the frame 3 and is adjustable to any desired degree of pressure against the paper roll 7 by means of horizontal hand-screws 27, working in threaded bearings 28 on the frame 3 against the adjustable bearings 25. The heated engraved re-forming-roll 22, having the same number of ribs as the forming-roll 11, rotating with and bearing with such pressure against the paper roll, its ribs mesh with the ribs produced on the paper roll 7 by the forming-roll 11 and freshen and re-form the ribs on the paper roll.

As the pressure of the forming-roll 11 on the under side of the formed roll 7 is in a vertical direction, whereas the pressure of the re-forming-roll 22 thereon is produced by separate means in a horizontal direction, the adjustment of the pressure of the forming-roll is independent of the pressure of the re-forming-roll, by which independent adjustment of the pressure of the forming and re-forming rolls I am enabled to produce watered silk of much greater luster and beauty of pattern on both faces, with much greater ease and convenience than with machines commonly employed heretofore.

Having thus described my invention and the mode in which I carry it into practice, I claim as my invention—

1. In a machine for making watered silk, the combination with the frame, the impression-roll and means for rotating the same, of rotatable forming and re-forming rolls having ribs thereon, and means for pressing the forming and re-forming rolls against the impression-roll independently of each other and in different planes.

2. In a machine for making watered silk, the combination with the frame, the impres-

sion-roll and means for rotating the same, of a rotatable forming-roll having ribs thereon, and means for pressing the same yieldingly against the impression-roll in one plane, a rotatable re-forming-roll having ribs corresponding to those on the forming-roll, and means for pressing the re-forming-roll adjustably against the impression-roll in a plane different from that of the forming-roll.

3. In a machine for making watered silk, the combination with the frame, the impression-roll and means for rotating the same, of a rotatable forming-roll having movable bearings, an hydraulic press for pressing the forming-roll upward against the under side of the impression-roll a rotatable re-forming-roll, having movable bearings, the forming and re-forming rolls having ribs thereon, and means for adjusting the bearings of the re-forming-roll against the side of the impression-roll.

In testimony whereof I have hereunto set my hand the 6th day of November, 1905.

JOHN J. CAVAGNARO.

In presence of—

J. W. HARDING,

ALFRED C. CAVAGNARO.